BULLETIN

of the

ONTARIO COLLEGE OF PHARMACY

Vol. IX No. 1 | TORONTO, Ontario | January, 1960
H. J. Fuller, Editor

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Vol. IX No. 1 TORONTO, Ontario January, 1960

H. J. Fuller, Editor

The Ontario College of Pharmacy is the pharmaceutical licensing body for the Province of Ontario, Canada. All pharmacists licensed in Ontario are *IPSO FACTO* members of the College.

The majority of contributors to the Bulletin are members of the Faculty of Pharmacy, University of Toronto. However, contributions are welcomed from all members of the College.

Published five times a year, January, March, May, September and November by the authority of the Council of the Ontario College of Pharmacy.

Editorial Office, 46 Gerrard St. East, Toronto 2, Ontario

Circulation 4400

Authorized as second class mail, Post Office Department, Ottawa.

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GRADUATE STUDY AND THE CANADIAN RESEARCH CONFERENCE

presented to the Canadian Pharmaceutical Association Convention
St. John, N.B., August 24, 1959

Dr. F. N. Hughes

The subject of this paper is a good one for any speaker because it permits him broad scope in either one of two interesting and dynamic fields. One could concern himself chiefly with the excellent progress which has been made recently in the field of graduate study in Canadian schools of pharmacy. On the other hand he could concentrate on the expansion of pharmaceutical research in Canada. However, the subject is even more an ideal one for a dean of a Canadian school of pharmacy. It permits him to show something of the relationship which inevitably exists between graduate study and a strong research programme. At the same time it affords him the opportunity to analyze, however briefly, the sources of financial support for such programmes and to point up the dependence of the two, in part at least, on the degree to which pharmaceutical industry both internally and externally is making its contribution within Canada to the advancement of knowledge in the sciences related to pharmacy.

It is not just a happy coincidence that the growth of the Canadian Conference on Pharmaceutical Research has paralleled the development of graduate study programmes in the colleges. The improvement in quantity and quality of the papers in the research conferences could not have occurred without the enlargement of graduate study and its concomitant researches. While, theoretically, effective research might be, and, in some fields, is being done in universities without graduate students, this is impossible where the overall financial support of research is so poor as it has been in the Canadian schools of pharmacy.

By the same token it is no mere coincidence that the development of both graduate study programmes and the research conferences has occurred since the establishment of the Canadian Foundation for the Advancement of Pharmacy. The Foundation has not only directly sponsored each of the latter, but it has, through its gradually expanding assistance programme, provided a constant stimulus to the colleges in the development of all aspects of pharmaceutical education, including graduate study and research. It has often been shown how dramatically teaching staffs increased in numbers and qualifications

during the first ten years of the Foundation's existence due substantially to the direct financial aid to then existing and prospective staff members in their graduate work. From a total of some 10 full time staff members in all Canadian schools of pharmacy in 1945, only one with a doctor's degree, the number rose to about 50, about one-half of them with a doctorate. To-day this is higher. This was a **sine qua non** for development of graduate study. In mentioning the key role of the Foundation there is no thought of overlooking the influence of the Canadian Conference of Pharmaceutical Faculties. This has been constant and profound. Furthermore the organization of the Conference in 1944 under the aegis of the C.Ph.A. did much to stimulate the formation of the Foundation which shortly assumed joint financial responsibility with the Canadian Pharmaceutical Association for the Conference. So we have the happy situation wherein the development of graduate study and research has been a product of the remarkable organizational changes in Canadian pharmacy which had their inception in the fifth decade of this twentieth century.

Research Conferences

The First Canadian Conference on Pharmaceutical Research was held in Windsor, Ontario, August 3rd, 1948. The Chairman was the late Mr. R. H. Thompson. Seven papers were presented, four from industry and three from schools of pharmacy. Successive conferences have been held since as follows: Montreal, August 25th, 1951; Ottawa, August 17th, 1956; Montreal, August 9th, 1957; Edmonton, August 8th, 1958; and St. John, August 21st, 1959. All have been held under the joint sponsorship of the Canadian Foundation for the Advancement of Pharmacy and the Canadian Conference of Pharmaceutical Faculties. The programmes have been arranged with the co-operation, also, of the Technical Section of the Canadian Pharmaceutical Manufacturers' Association and the Food and Drug Directorate, Department of National Health and Welfare, Ottawa. The chart is a summary of the papers from the several divisions.

Some of these figures require explanation in order that this table may be properly interpreted. In 1948, only three papers could be obtained from the schools. Graduate programmes to the master's level were offered to occasional candidates by the schools in the Universities of Alberta, Saskatchewan and Montreal. In 1951 and 1956 all papers offered were accepted. In each year it turned out that three were not research papers. Since 1956 only research papers have been accepted, and the number has been limited to sixteen. The numbers provided by the faculties have not in any of the last three conferences represented all available papers from the university laboratories. There are now so many investigations proceeding in the schools that additional papers could be procured from this source if they were needed. Furthermore the quality of papers from the universities is now much more uniformly high than earlier.

Several factors have swerved to keep down the participation by government laboratories and the pharmaceutical industry. More research is proceeding in Ottawa now than ever. However, the problem

of these scientists travelling to distant points to present papers is a difficult one. When the Conference was held in Ottawa no problem was found in obtaining papers from these laboratories. In the pharmaceutical industry the problem is quite a different one. In point of fact it appears that only about 1 or 2 companies carry on any degree of basic research in Canadian laboratories.

	Number of papers from		
	Industry	Government Laboratories	Colleges of Pharmacy
First Conference, 1948 ..... (Windsor, Ontario)	4 (1 Can.) (3 U.S.A.)	0	3
Second Conference, 1951 ..... (Montreal)	4a (all Can.)	0	11b
Third Conference, 1956 ..... (Ottawa)	7c (4 Can.) (3 U.S.A.)	6	9d
Fourth Conference, 1957 ..... (Montreal)	6 (2 Can.) (3 U.K.) (1 U.S.A.)	4	6
Fifth Conference, 1958 ..... (Edmonton)	3 (all U.S.A.)	1	13
Sixth Conference, 1959 ..... (Saint John)	2 (1 Can.) (1 U.S.A.)	2	12
Totals	26e (12 Can.) (11 U.S.A.) (3 U.K.)	13	54f

a—1 was not a research paper
b—2 were not research papers.
c—2 were not research papers
d—1 was not a research paper
e—representing 12 companies (4 Canadian)
f—8 of the 9 colleges represented

And so the growth of the research conferences reflects on the one hand a very healthy development of research in the schools of pharmacy where, from small beginnings in two of the faculties just over a decade ago, there are now six colleges with active programmes. Five of these offer work to the master's level and one, Alberta, offers a Ph.D. programme as well. This past session there were around twenty-five graduate students in these schools. Yet much more progress could be made if sufficient funds were available to support some of these research projects. N.R.C. and other government agencies

have helped substantially. The C.F.A.P. has provided useful aid, but the pharmaceutical industry has provided directly little or no help.

The research conferences reveal on the other hand an unhealthy situation in a lack of development of research in Canadian Pharmaceutical industrial laboratories. In a period where there is phenomenal growth of medicinal chemical research is it not regrettable that the majority of pharmaceutical companies in Canada, subsidiaries and independent, are not engaging in any strictly Canadian development work? I suggest that they have a responsibility both to the Canadian economy and to profession of pharmacy to do so. We are told that the United States pharmaceutical industry will expend this year on research 7 percent of its gross sales, i.e. about $190,000,000. It is difficult to understand why these companies which also have Canadian operations do not encourage their Canadian subsidiaries to expend a similar proportion of Canadian sales on research in Canada. Until it is feasible for them to develop research laboratories in this country these companies could support research in pharmaceutical, medical and dental faculties. Several are supporting medical research. One company announced last year eleven fellowships in six medical schools. Another has established an annual $4000 medical fellowship besides making substantial special grants. Another has had a $3000 award in the University of Toronto Medical Faculty for some years. This is commendable but why not pharmacy? To my knowledge the only pharmaceutical company which has made grants for research in Canadian pharmacy faculties is Warner-Lambert of Canada Ltd. who established an annual research fellowship of $1500 in each of five Canadian schools of pharmacy commencing in 1958. This is the type of support which is badly needed in which, I suggest, Canadian pharmacy has a right to expect from companies operating in Canada. The quality of research in the schools has now reached a high level. The 6th Canadian Conference last Friday demonstrated that. Yet only 3 companies had representatives in the audience.

It was encouraging to learn at this meeting that steps may soon be taken for the Canadian pharmaceutical industry to play a more active role in research in the Colleges. When this becomes a reality I suggest that the pace of research progress which is already significant in the colleges will be accelerated, more graduate students will become available and will find good posts in Canadian pharmacy. The march of pharmacy in this country will go forward to new heights. As it does every branch of pharmacy will benefit from the enhanced prestige and, not the least, the pharmaceutical industry.

F. NORMAN HUGHES.

Canadian Pharmaceutical Association 18th Annual Survey

Questionnaires are in the mail. In view of the recent attacks on Pharmacy we need facts more than ever before. Fill out your questionnaire as soon as possible after the end of your financial year.

PHARMACY AND BETTER COMMUNITY HEALTH 1960 - 2010

The Jubilee meeting of the Canadian Public Health Association, held in Montreal in June, 1959, marked the fiftieth year of this national voluntary health agency, which is concerned with the promotion of health for all Canadians. Firm in the belief that the effectiveness of all health departments, federal, provincial and local, is dependent upon properly qualified physicians, dentists, nurses, sanitarians and other essential personnel, the leaders of this Association, during the last half century, have concentrated their efforts upon the strengthening of the public health profession through the education of public health workers. Public recognition of this objective has now enabled this Association to accept a significant role in the development of a pattern for public health in Canada.

Physicians, nurses, dentists and pharmacists are frequently grouped as partners in health. The role of the pharmacist in the preparation and dispensing of prescriptions is an important responsibility in every community. However, patterns in community health are changing. Are pharmacists keeping pace with these opportunities and accepting this challenge of broader service to the community?

In reviewing the state of health in Canada today (1), it is evident that while many diseases such as typhoid, smallpox, diphtheria and tuberculosis have been brought under control, new problems have arisen in dealing with the diseases of old age, alcoholism and mental health. In Ontario alone, during the five year period 1953 - 1957, 18,086 deaths were attibuted to accidents, poisoning, and violence. In persons under 35 years of age, accidents contributed more deaths than any other single cause (2). In the Windsor area, 524 cases of poisoning were recorded in a recent eight-month period in 1957 and 1958. Of these, 298 were due to drugs, with 121 cases involving acetylsalicylic acid, 112 cases reported due to flavoured children's tablets, and 83 cases attributed to children's headache tablets (3). Although tranquillizing agents have recently been placed under prescription control in Canada, all potential dangers regarding these agents have not been eliminated. Limitations still govern their prolonged use and the constant reevaluation of the patient's psychiatric symptomatology by the physician is necessary when these drugs are administered over an extended period of time. Habituation and dependency upon the physician for adequate supplies of these drugs are now recognized in cases where misuse or overuse of these agents has occurred (4).

The interest of the average Canadian in his health has been brought out very clearly in the past few months, as evidenced by the numerous articles and press notices which have appeared regarding prescription pricing. Health education is regarded by some authorities as the greatest need in public health. Pharmacists have many opportunities to assist their fellow Canadians in learning to protect themselves and their families through preventive medicine. For example, all members of the community should be made to realize that infants must be completely protected from hazards. Prominently displayed bulletin boards in retail pharmacies, where clippings about childhood

accidents and literature emphasing safety in the home could be posted, would serve as helpful reminders to waiting customers. Older children must be taught good safety habits. Even a casual word of caution addressed in jovial conversation to teenage customers and younger children, regarding the protection of their health and common sense first aid practices, might be recalled in time of danger and save a life or instinctively prevent an accident. Adults need to be continually reminded to keep drugs and poisons in safe places, well out of the reach of small children. In addition, the dangers of overuse, abuse or misuse of prescription drugs should be drawn to the attention of persons handling or administering potentially dangerous therapeutic agents, especially those which may lead to habituation, toxicity or undesirable side effects. Self medication should always be discouraged and the customer gently but firmly persuaded to seek medical advice.

The Canadian Public Health Association will continue to provide leadership in the public health field during the next fifty years but pharmacists cannot expect to be rightfully included with physicians, nurses and dentists as partners in health unless they accept more responsibility in the areas of public health pertaining to pharmacy and pharmaceuticals. To persuade others one must first be persuaded oneself. Only a brief perusal of the current public health literature is required to convince the reader of the urgent need for a more intensive campaign for health education.

Two useful sources of information on public health in Canada were published last year. Eleven articles pertaining to the provincial and federal departments of health appeared in the Canadian Journal of Public Health. Each article included a brief historical background of the department and an outline of the present health services. The Ontario Department of Health was described by J. T. Phair, M.B., D.P.H. and R. D. Defries, M.D., D.P.H. in the May, 1959 issue on pages 183 - 196. To commemorate this Jubilee of the Canadian Public Health Association and its Journal, these articles will later appear in book form under the title "Public Health Services in Canada". In addition, the Department of National Health and Welfare at Ottawa has recently published a bibliography entitled "Selected Canadian Public Health References of Epidemiological Significance 1950 - 1957". Annual supplements to this publication are to be available and a complete revision is proposed for 1960 and every five years thereafter. Supplement #1 for 1958 appeared in October, 1959.

For better community health in the next fifty years, let us, as pharmacists, accept this challenge with alacrity and assume our responsibilities under this new pattern for public health in Canada in such a manner that we may rightfully deserve the designation "partners in health".

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ISABEL STAUFFER.

PROFIT AND NON-PROFIT PHARMACIES IN ONTARIO IN 1958

The chart on the next page is similar in design to ones published in the Bulletin in September, 1957 and November, 1958. It is designed to show why some pharmacies are not profitable or more profitable by contrasting certain key items with those of the most profitable ones. In each of the Sales categories, A, B, C, D, and E, **a** is the average of the pharmacies with total income below the standard **b** those with net profit between 1% and 5% of total sales, and **c** those with net profit above 5% of sales. By net profit we mean the amount left over after standard proprietor's compensation (see page 45, C.Ph.J., September, 1959) has been taken out of total income.

A. Sales Volume Below $50,000

The four pharmacies in the **a** group averaged $12,000 a year less in sales which accounted for a good portion of the difference in total income when contrased with the **b** and **c** groups. Also, these pharmacies paid 3.6% more for their merchandise which meant a sacrifice of over $1,100 in Total Income.

B. Sales Volume $50,000 to $75,000

Here, nine pharmacies paid 2.9% more for merchandise and 5.2% more for expenses, a total of 8.1%, than the 16 pharmacies in the **c** group. These two factors mean nearly $3,300 in the total incomes of the proprietors.

C. Sales Volume $75,000 to $100,000

Sales in the **a** group are virtually the same as the **c** group yet 5.9% more was paid for merchandise and expenses were 3.4% higher, a total of 9.3%. These two items cost the proprietors an average of nearly $8,000 in potential income.

D. Sales Volume $100,000 to $150,000

Here, we find the same distressing circumstances. Pharmacists in the **a** group paid 4.4% more for their merchandise than their contemporaries in the **c** group. When sales are large, $128,000, this is a tidy $5,600 loss in potential total income. Coupled with a 5.2% more expense is a further sacrifice of $6,600 is incurred, accounting for a $12,000 differential in the proprietors' total income.

Comparison of the **b** and **c** groups shows a $8,800 differential in total income mainly the result of higher expenses all across the board, and with 0.6% hgher cost of merchandise adds up to 6.1% and 6.1% of $128,000 is $7,800.

E. Sales Volume Over $150,000

One wonders why the pharmacy in group **a** with such a large volume paid more for merchandse than any pharmacy in Ontario reporting in 1958. It may indicate a large volume of tobacco and magazine sales, although this is doubtful when we look at the large inventory of $35,000, several thousand dollars higher than the others with similar sales volume.

Comparing the **b** and **c** groups, while there is a differential of $25,000 in sales yet the **b** group paid 2.9% more for merchandise and 1.4% more for employees' wages, a total of 4.3% which when multiplied by $196,000 amounts to over $8,000.

It is to be hoped that the pharmacists in these groups will be able to identify themselves and take the appropriate steps to further their own economic interests.

H. J. FULLER.

ONTARIO 1958

No. of Stores	Cost of Goods Sold	Employees' Wages	Rent	Miscellaneous Expenses	All Other Expenses	Total Expenses*	TOTAL INCOME	Total Income as a % of Sales	Average Sales	Average Inventory	Number of Prescriptions	Sales of Prescriptions	Price per Rx	Rx Sales as % of Total Sales
A						**Sales Volume Below $50,000**								
a. 4	72.1%	4.8%	1.8%	1.8%	5.4%	14.6%	$ 4,296	13.7%	$31,367	$ 9,743	none reported			
b. 9	68.5%	5.7%	2.3%	1.6%	6.3%	15.9%	$ 6,849	15.8%	$43,376	$11,162	2,028	$ 5,769	$2.84	14.6%
c. 9	65.5%	4.4%	2.4%	1.2%	4.7%	12.7%	$ 9,717	21.7%	$44,759	$10,620	3,381	$ 9,109	$2.69	23.0%
B						**Sales Volume $50,000 to $75,000**								
a. 9	69.0%	9.2%	2.3%	1.6%	8.0%	20.7%	$ 5,890	10.3%	$57,193	$11,655	4,642	$13,095	$2.82	20.9%
b. 12	68.0%	8.5%	2.5%	1.7%	6.3%	19.0%	$ 8,250	13.2%	$62,358	$12,520	4,531	$12,973	$2.86	20.2%
c. 16	66.1%	7.2%	2.0%	1.3%	5.0%	15.5%	$11,744	18.3%	$63,933	$13,272	4,212	$12,432	$2.95	20.2%
C						**Sales Volume $75,000 to $100.000**								
a. 4	72.4%	10.3%	3.9%	1.8%	5.0%	21.0%	$ 5,791	6.8%	$84,556	$18,903	4,524	$14,284	$3.15	17.5%
b. 16	70.1%	9.8%	2.1%	1.7%	4.9%	18.6%	$10,001	11.4%	$87,302	$15,373	5,347	$16,118	$3.01	18.5%
c. 12	66.5%	9.0%	2.1%	1.7%	4.8%	17.6%	$13,669	16.2%	$84,141	$16,268	5,730	$17,743	$3.09	20.6%

ONTARIO 1958

No. of Stores	Cost of Goods Sold	Employees' Wages	Rent	Miscellaneous Expenses	All Other Expenses	Total Expenses*	TOTAL INCOME	Total Income as a % of Sales	Average Sales	Average Inventory	Number of Prescriptions	Sales of Prescriptions	Price per Rx	Rx Sales as % of Total Sales
D						**Sales Volume $100,000 to $150,000**								
a. 3	69.7%	15.9%	2.9%	1.7%	3.7%	23.2%	$ 8,116	6.3%	$128,107	$17,545	none reported			
b. 21	65.9%	13.2%	3.2%	2.8%	6.0%	25.2%	$11,589	9.0%	$128,739	$23,101	8,573	$27,033	$3.15	20.3%
c. 23	65.3%	10.6%	2.0%	1.1%	4.2%	18.0%	$20,391	16.9%	$120,592	$19,931	9,373	$28,122	$3.00	25.2%
E						**Sales Volume $150,000 UP**								
a. 1	73.2%	12.2%	2.8%	0.8%	6.0%	21.8%	$ 8,180	5.1%	$159,522	$35,179	none reported			
b. 12	67.9%	14.1%	2.0%	2.1%	5.6%	23.9%	$16,320	8.3%	$196,221	$31,126	9,840	$29,903	$2.02	14.7%
c. 17	65.0%	12.7%	2.4%	2.0%	5.0%	22.1%	$29,266	13.1%	$222,894	$33,581	17,592	$48,977	$2.78	22.8%

*Exclusive of Proprietor's Salary.

a—Below Standard.

b—Net Profit 1% to 5% of Sales.

c—Net Profit Above 5% of Sales.

1959 PHARMACY WEEK CONTEST WINNERS

Queen Mary Pharmacy of 4969 Queen Mary Road, Montreal, was awarded the Gibbard Trophy for its outstanding, informative display in the 1959 Pharmacy Week Window Display Contest of the Canadian Pharmaceutical Association.

The display, installed as a "do-it-yourself" project by pharmacist C. Goldstein and his son, carried the theme **'Key to Good Health'** by depicting the progress of Pharmacy in an atmosphere of professional Pharmacy equipment and products. Motion and colour drew attention to the many-stage processes of bringing modern medication to the public. By the use of coloured plates depicting vitamin deficiencies, and by a large size sample prescription, emphasis was placed on the need to seek the professional services of physicians and pharmacist.

Mr. Goldstein, as national winner of the Canadian contest, receives a cash prize of $100., the Gibbard Trophy (won in 1958 by Mr. Norm Osborne of Toronto) and a miniature trophy for permanent retention. Additional cash prizes of $50. each were awarded to winners in various population categories. The cash awards, totalling $300. are made available through the courtesy of the Canadian Pharmaceutical Manufacturers' Association.

In the "over 20,000 population" competition, Robbins Limited of Saint John, New Brunswick (a previous Gibbard Trophy winner) again submitted a winning display. The photography of the display which was installed by Miss G. E. Craig, shows a mock-up of gambling devices and then depicts the science and knowledge of Pharmacy to urge the public to "Don't Gamble With Health . . . Don't Take a Chance".

Doan's Pharmacy of Leamington, Ontario, will receive the $50. for its prize-winning display in the population category of **"over 5,000 to 20,000"**. Mr. L. F. Doan used available Pharmacy Week display cards along with specially prepared cards and the History of Pharmacy paintings as the background of his display of modern therapeutic medicaments.

In the category reserved for towns and villages **"under 5,000"** population, the winner was selected as William E. Ayerst of Amherstburg, Ontario. The display was installed by assistant-manager Dave Elder. Display cards formed the background of this store's open-window. Top-grade vitamin preparations were emphasized amidst pharmaceutical reference books and equipment.

History . . . "Over 75 Years of Prescription Writing" . . . was the theme of Saskatchewan's College of Pharmacy display which was awarded the prize for colleges. Physicians attending the October convention of the Saskatchewan Medical Association found its "antique" prescription records most interesting. Coloured show-globes, apothecary jars and modern forms of medication were the attention-getting items of this display.

The judges . . . Harold Smith, O.R.P.A. Secretary; Harold Schein, T.R.P.A. Councillor; Ken Legge, Toronto manager of Drug Trading Company . . . expressed extreme satisfaction with the high quality of all displays entered, although the quantity was disappointing.

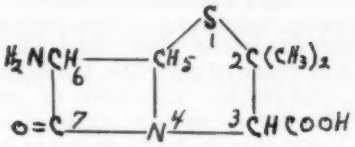
The Gibbard Trophy Winner for 1959, Queen Mary Pharmacy, Montreal, Quebec

A NEW PENICILLIN

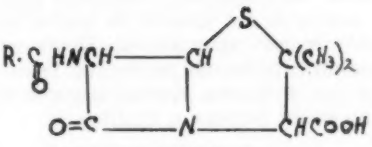
Dr. Ross M. Baxter

Recently the introduction of a new partially synthetic penicillin has been announced by two pharmaceutical companies. The new penicillin (structure IV) is the potassium salt of α-phenoxyethyl penicillin (6-(α-phenoxyproprionamido) penicillanic acid) and has been introduced under the names Brocsil (BRL-152) and Syncillin (Potassium penicillin 152). The new penicillin is not a totally synthetic penicillin since the nucleus of the penicillin molecule, 6-aminopenicillanic acid, is produced by fermentation procedures. The significance of the new penicillin in addition to what appear interesting properties is that it is the outgrowth of the successful complete synthesis of the penicillin molecule. This was first achieved as a result of the brillant work of Sheehan and Hénery-Logan (1) who accomplished the first rational synthesis of a natural penicillin, namely, penicillin V (structure II). The synthesis of the nucleus of the penicillin molecule, 6-aminopenicillanic acid (structure I) appeared to be an insurmountable task for many years due to the inability to obtain ring closure to form the B-lactum ring of the penicillin nucleus.

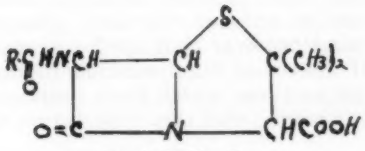
Although the synthesis of a biologically active penicillin was an outstanding achievement the method was not an economically feasible one for the production of a series of new penicillins. The isolation of pure 6-aminopenicillanic acid from penicillin fermentations carried out in the absence of added side-chain precursor, using an isolate from **Penicillium chrysogenum** W.51.20, opened the way for the development of a practical means of obtaining the penicillin nucleus which could then be used for the synthesis of a large number of new penicillins. Workers (2) at the Beecham Research Laboratories were the first to offer unequivocable proof of the production of the basic nucleus by fermentation procedures. Earlier reports (3, 4, 5) however had presented evidence which strongly suggested the production of 6-aminopenicillanic acid during fermentations with **P. chrysogenum** and that the side-chain additions to produce the various natural penicillins (penicillin G, V, etc.) followed the biosynthesis of the intact penicillin nucleus. Thus it has become possible to produce a large number (over 600) of side-chain substituted penicillins that could not be obtained by previously known fermentation and precursor methods. It is too early to know how many of the penicillins will prove therapeutically valuable although approximately 10 per cent of these offer promise.



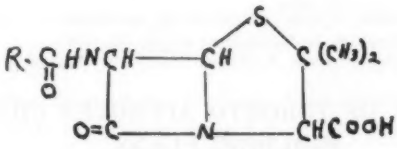
The Penicillin Nucleus
6-Aminopenicillanic Acid
(I)



Penicillin V
R = Phenoxymethyl ($C_6H_5OCH_2$)
(II)



Penicillin G
R = Benzyl ($C_6H_5CH_2$)
(III)



Penicillin 152
R = Phenoxyethyl ($C_6H_5OCH_2CH_2$)
(IV)

The properties of a new penicillin which would make it more valuable than those already available would include: **highly efficient absorption by the oral route producing** highly antibacterial blood levels obtainable by injection; **prolonged duration of action; antibacterial effectiveness against microorganisms that are resistant to the presently available penicillins.** Such a penicillin would therefore probably have a lowered inactivation sensitivity to the enzyme penicillinase. Related compounds (cephalosporins) have been reported to have this increased resistance to penicillinase inactivation (6, 7); **expanded antibacterial spectrum.** Cephalosporin N, a penicillin with a highly polar side-chain derived from D-aminoadipic acid has been reported (8) to have a very different range of activity, being more active than penicillin G against certain gram-negative organisms.

The new penicillin which has been introduced (Brocsil, Syncillin) appears to have certain of the above desirable properties. Early indications are that the new compound when administered orally produces blood levels higher than those of penicillin V (reported value is two to three times) or intramuscular injections of penicillin G. Alpha phenoxyethyl penicillin has apparently an even greater stability to acid than penicillin V and this no doubt accounts in part for the high blood levels reported for this penicillin. A report (9) of the clinical use of this new antibiotic in the treatment of fourteen clinical infections in 164 patients indicates that it inhibits a greater number of penicillin G-resistant **Staphylococcus aureus** organisms than do other penicillins, namely, penicillin O and V. Thus, if more widespread use supports the early findings with this new penicillin its introduction therefore makes available an improved penicillin with the expectation that more tailored penicillins will follow with specially designed properties unknown in those presently available. It should be borne in mind however that at the moment this is only speculation. However if molecular manipulations of the penicillin molecule proves as fruitful as those which have been carried out with the steroid hormones in recent years this expectation will no doubt become a reality.

ROSS M. BAXTER.

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UNIVERSITY OF TORONTO APPROVES PHARMACY BUILDING PLANS

On November 24th the Board of Governors of the University of Toronto approved the plans submitted by the Faculty for the renovation and equipping of the "new" Pharmacy Building. The estimated cost is in excess of $1,000,000. and the target date is September, 1960.

The building—at the corner of Huron and College Streets—will be almost completely rebuilt inside the walls and above the floors. New construction is necessary within the "court" area on the 4th, 5th and 6th floors in order to provide proper corridors, service and laboratory space. Total utilisable area will be about 2½ times that in the present building. Included are: 4 large undergraduate laboratories 3600 to 4000 sq. ft. each, much larger manufacturing, microbiological and instrument laboratories, about 12 research laboratories, radioisotope laboratory, 3 student common rooms, model dispensary, museum, large library, etc. The Ontario College of Pharmacy will continue to be associated with the Faculty. The cost of laboratory apparatus alone will approximate $65,000.

Participation by Pharmacy alumni in the National Fund for the University of Toronto will help to make this possible.

PROCLAMATION

TO THE PHARMACISTS OF ONTARIO

We, the dentists of Ontario solicit the assistance of all Registered Pharmacists of Ontario to spread information about Good Dental Health during National Health Week.

Dental Health Day – Wed., Feb. 3rd, 1960

WHY?

The "average" dental patient is in our office 30 minutes every 6 months (if that often!). Perhaps you speak to him oftener than that!

DID YOU KNOW THAT:

1. Tooth decay is the most widespread disease of civilization—affecting 98 to 99% of the population!
2. 20% of two year olds have 2 cavities in their important first teeth!
3. 50% of three year olds have tooth decay!
4. At age 6, 4 of these important first teeth have been extracted and 25% of these permanent molars are decayed!
5. At age 12, 5 permanent teeth are decayed and one extracted, leaving the average 12 year old a dental cripple!

CAN YOU ANSWER THESE:

1. Does lack of calcium cause tooth decay. NO!
2. Do candy, gum, soft drinks, and sweet desserts help cause tooth decay. YES!
3. Is fluoride a drug or medication. NO! Fluoride is an element.
4. Does fluoride in concentration 1 p.p.m. in drinking water reduce tooth decay by more than 60%. YES!
5. Do twice yearly visits to your dentists help to find and repair cavities while they are still small. YES!

SUGGESTED PRESCRIPTIONS FOR GOOD DENTAL HEALTH

(1) Rx. One toothbrush.
Sig. To be used regularly after eating.

(2) Rx. One copy of Canada's Food Rules.
Sig. To be followed faithfully.

(3) Rx. Candy, gum, soft drinks, cake, pie, sweet desserts and cookies.
Sig. Substitute raw fruits, celery, carrots, cheese, popcorn, nuts, milk, orange juice.

(4) Rx. Communal water supplies. Add fluoride 1 p.p.m.
Sig. To be used daily.

(5) Rx. Your dentist.
Sig. Visit twice yearly.

I. M. COYNE, D.D.S.

THE STATUS OF PHARMACIST - PODIATRIST RELATIONSHIPS

In view of the recent letter to all pharmacists in the Province of Ontario from the Registrar-Treasurer of the Ontario College of Pharmacy, Mr. P. T. Moisley, it is interesting and important to review for the retail pharmacist, the privileges of the prescriber and receiver of a prescription. In any province of Canada as in any State of the United States of America, the practising retail pharmacist is governed by two sets of regulations, namely, Federal (Food and Drug Regulations, Opium and Narcotic Drug Act, etc.) and Provincial (The Pharmacy Act of the Province concerned, in our particular case—The Pharmacy Act (Ontario) 1953 with Amendments).

The podiatrist or Chiropodist as he is more commonly known to us is recognized by the Ontario Medical Act as indicated in the letter dated December 7, 1959, which all registered pharmacists should have received before this. However to recapitulate, the Ontario Medical Act says: (1)

"(4) **Nothing** in this Act or the Regulations **shall authorize any chiropodist** (a) to administer any drug internally or **to prescribe any drug for use internally,** (b) to administer an anaesthetic other than a substance applied externally to the skin, or (c) to practise medicine, surgery or midwifery.

But nothing herein contained shall prevent the treatment by a registered chiropodist of the morbid conditions of the nails and skin and resulting minor morbid conditions of the subcutaneous tissues of the human body."

Specifically noted should be the portion reading that "nothing . . . shall authorize any chiropodist . . . to prescribe any drug for use internally . . . It should seem apparent then that, in Ontario, the podiatrist may **not** prescribe **internal medication of any type.**

Let us next review what the Pharmacy Act (Ontario) 1953, has to say about prescribers and the prescription. The term which is defined in the Pharmacy Act is "prescription". This definition is as follows: (2)

" 'Prescription' means a direction from a legally qualified medical practitioner, dentist or veterinary surgeon directing the dispensing of any drug or mixture of drugs to a named person".

It should be apparent then that, in the true sense of the Act, a chiropodist, in Ontario, may **not** write a "prescription" for any substance whatsover in the province of Ontario. This situation may or may not apply in the other provinces depending upon the particular definitions in the respective Pharmacy Acts.

The Opium and Narcotic Drug Act section defining those people who may prescribe narcotics and narcotic-containing drugs is as follows: (3)

"Subject to the regulations, no retail druggist shall supply a drug to any person except upon receiving a written order or prescription therefor dated and signed by a **physician, dentist** or **veterinary surgeon** whose signature is known to the druggist or, if unknown, then verified before the prescription is filled".

Consideration of the preceding section, together with the statement that "no provision is made in the Opium and Narcotic Drug Act for the acceptance of prescriptions by a pharmacist and issued by a chiropodist" (4), it would seem ridiculous for a pharmacist to accept such a request.

The Food and Drug Regulations give two definitions which are at least in part applicable to this discussion (5).

" 'practitioner' means a person authorized by the law of a province of Canada to treat patients with any drug listed or described in Schedule F to the Act".

" 'Prescription' means an order given by a practitioner directing that a stated amount of any drug or mixture of drugs specified therein be dispensed for the person named in the order".

However the basic point to be considered in these regulations is " a person **authorized by the law of a province** to treat patients . . . " and accordingly then reference must be made to the Ontario Medical Act, to which reference has been made.

In some of the Western provinces, as well as some States, I have been led to understand, the podiatrist has been authorized to prescribe both internal and external medication provided that the medication is used for the **treatment of the feet.** However this situation is not permissible in Ontario, at the present time at least.

This article, while perhaps not required, was instituted because of the comment of a pharmacist who has been referred to by some as "one of the elder statesmen of pharmacy". He is an ethical man and if some confusion may have existed in his mind then it is possible that such confusion may exist with others. His question was essentially this. If a pharmacist were to fill a request from a chiropodist for a non-narcotic schedule drug (Pr), would the pharmacist be guilty or would the onus of guilt be solely upon the podiatrist issuing such a "prescription"? The answer, of course, is that both would be liable, the pharmacist for **selling a** schedule drug **without a prescription** (and the chiropodist's request is **not** a prescription); and the podiatrist for illegally practising medicine. The pharmacist would be guilty under either the Pharmacy Act (Ontario) or the Food and Drug Regulations and the chiropodist would be guilty under the Ontario Medical Act.

Once again may I say,—No one should be more familiar with the regulations governing pharmacy than the pharmacist so let's practice our profession in the most ethical (and legal) manner possible.

REFERENCES

1. Letter to all Ontario Pharmacists from P. T. Moisley, dated December 7, 1959.
2. The Pharmacy Act (Ontario) 1953, page 4.
3. The Opium and Narcotic Drug Act, page 5.
4. Communication to P. T. Moisley from R. C. Hammond, Chief, Division of Narcotic Control, Department of National Health and Welfare, Ottawa.
5. The Food and Drug Regulations.

D. R. KENNEDY.

DO YOU HAVE REFRIGERATION?

A recent survey has revealed that in many parts of Canada there are fewer than 50 percent. of retail pharmacies with refrigeration for the storage of such biological products as antitoxins, vaccines, toxoids, pituitary extracts, insulin, etc. It is difficult to understand why pharmacists will run the risk of selling deteriorated medication when the cost of small refrigerators is so relatively small. Potency within the date limit printed on the package can only be assured under conditions of proper storage. The pharmacist would be culpable if Food and Drug inspectors found any such material below labelled potency.

Proper equipment is one "hall mark" of the professional pharmacist.

F. N. H.

BOOK REVIEW

A Textbook of Pharmaceutical Arithmetic by Mervyn J. Huston, 109 pages, $3.00, The Canadian Pharmaceutical Association, 1959.

This is the first pharmaceutical arithmetic textbook published in Canada for a number of years and it certainly merits the attention of not only pharmacy students but also practising pharmacists.

The textbook is used for undergraduate courses. The author explains the important points of each system of weights and measures and relates the systems to each other. The points are kept to a minimum since there is no irrevelant material. At the end of each chapter many exemplary problems are fully worked out so that the student should be able to understand all problems that may arise in the dispensary.

The text is of value to the practising pharmacist because it contains useful appendices such as: Relationships of Units of Volume and Weight, Dosage Equivalents and Abbreviations.

An increase in the number of problems to be solved by the student himself for each chapter of the book in addition to those review problems at the end of the book would give the student more opportunity to familiarize himself with the various types of calculations and the problems involved therein.

J. G. NAIRN.

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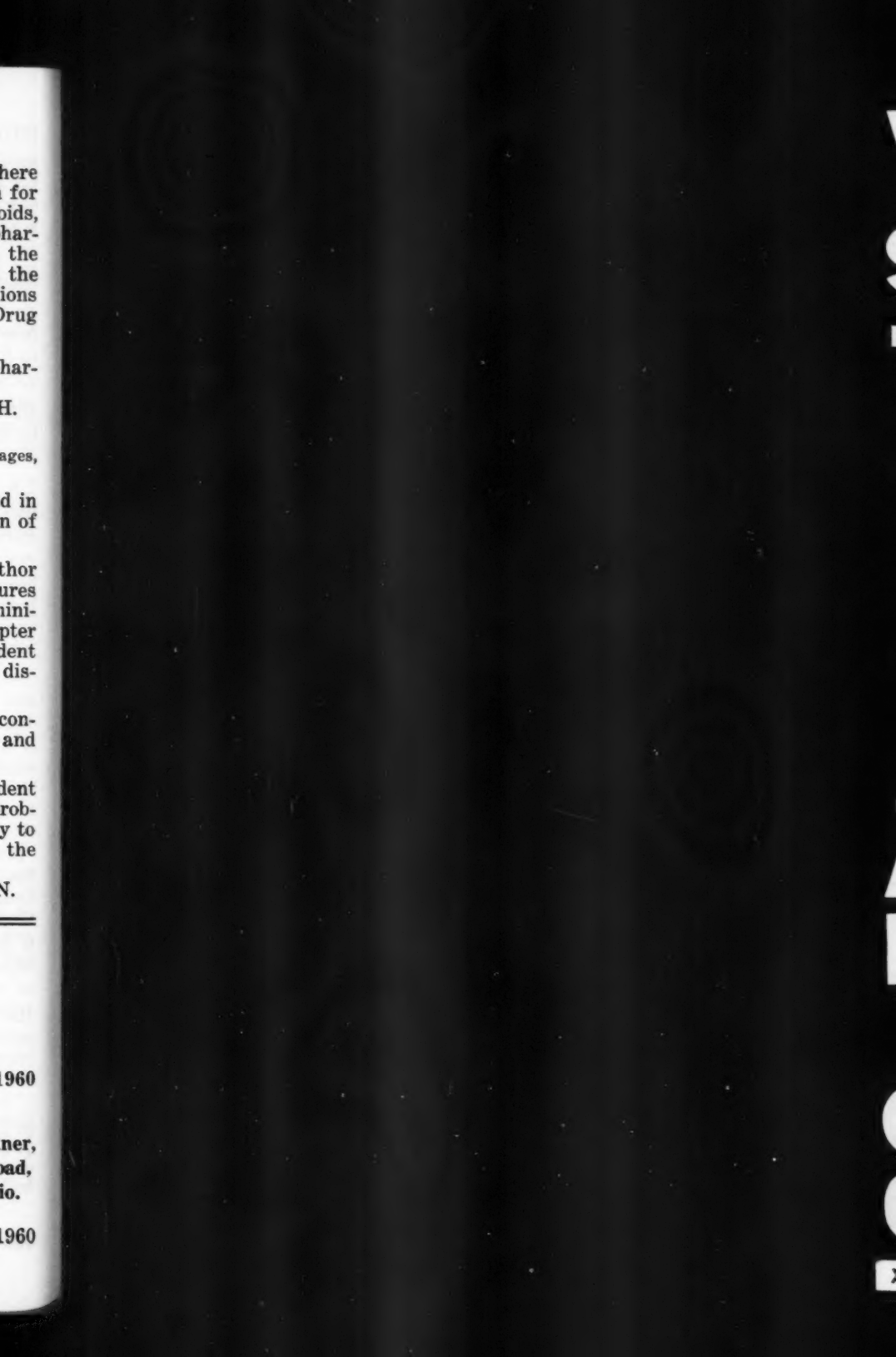

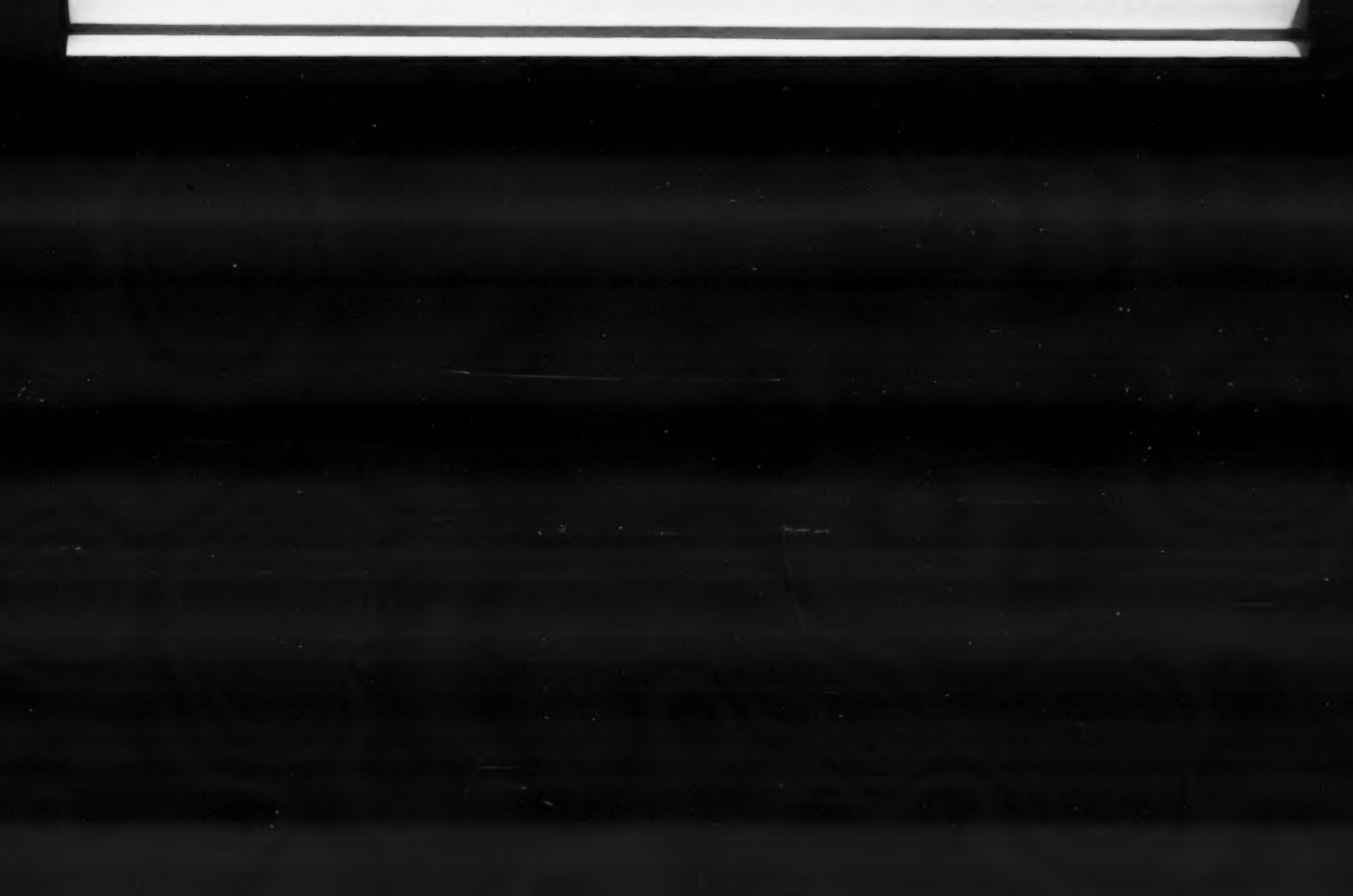

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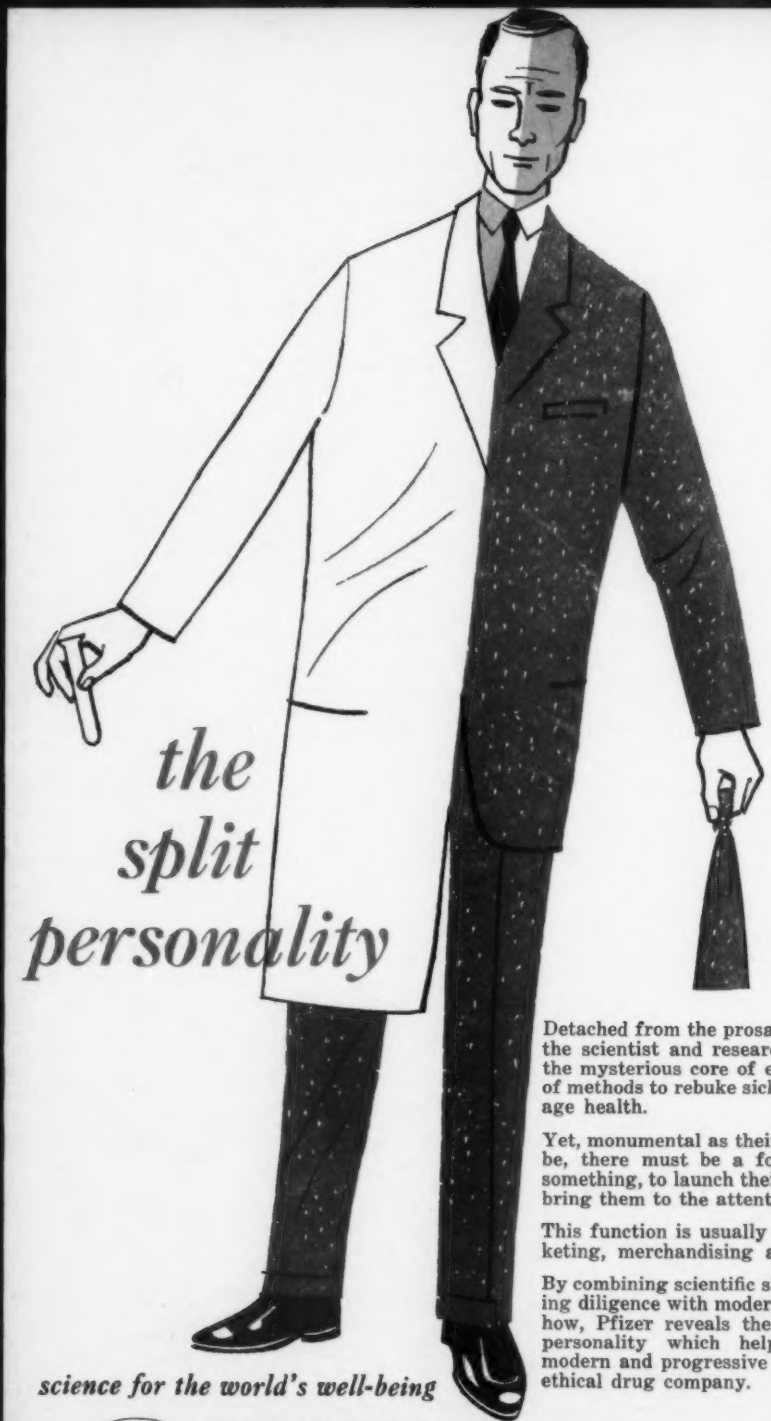

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